## AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** An impeller for a marine propulsion device, comprising a generally central hub having a generally central axis, the hub being adapted to rotate about the axis, at least one blade connected to the hub and extending generally outwardly therefrom, the blade comprising a leading surface facing generally upstream, a trailing surface facing generally downstream and an outer rim, and a groove formed on the outer rim of the blade, the outer rim having a leading edge and the groove being disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim.

2. **(Original)** The impeller of Claim 1, wherein the groove is formed at a predetermined location at the outer rim of the blade so as to allow fluid to back-flow from downstream to upstream to inhibit cavitation induced bubbles from imploding on the leading surface of the blade.

3. **(Original)** The impeller of Claim 1 in combination with a jet propulsion unit, wherein the impeller is enclosed in a housing of the jet propulsion unit, the housing has an inner surface, and a gap is defined between the outer rim of the blade and the inner surface of the housing, the gap being equal to a distance C.

4. **(Original)** The jet propulsion unit of Claim 3, wherein the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d about equal to the distance C.

5. **(Original)** The jet propulsion unit of Claim 3, wherein the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d in the range from about the same as the distance C to about twenty times the distance C.

6. **(Original)** The jet propulsion unit of Claim 3, wherein the groove has a width w about the same as the distance C.

7. **(Original)** The jet propulsion unit of Claim 3, wherein the groove has a width w in the range from equal to about the distance C to about twenty times the distance C.

8. **(Original)** The impeller of Claim 1, wherein the outer rim of the blade is spaced from the axis of the hub by a distance R and the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d in the range from about 0.46% of the distance R to about 10% of the distance R.

9. **(Original)** The impeller of Claim 1, wherein the outer rim of the blade is spaced from the axis of the hub by a distance R and the groove has a width w in the range from about 0.46% of the distance R to about 10% of the distance R.

10. **(Canceled)**.

11. **(Currently amended)** The impeller of Claim 1 ~~10~~, wherein the groove is positioned substantially adjacent to the zone of the leading surface.

12. **(Original)** The impeller of Claim 11, wherein the impeller has a direction of rotation and the groove is positioned forward of the zone of the leading surface relative to the direction of rotation.

13. **(Currently amended)** The impeller of Claim 1 ~~10~~, wherein the impeller has a direction of rotation and the groove is positioned forward of the zone of the leading surface relative to the direction of rotation.

14. **(Original)** The impeller of Claim 13, wherein the groove is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 50% of the distance E.

15. **(Original)** The impeller of Claim 13, wherein the groove is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 30% of the distance E.

16. **(Original)** The impeller of Claim 1, wherein the groove has a generally longitudinal axis which is substantially parallel to the axis of the hub.

17. **(Original)** The impeller of Claim 1, wherein the groove has a generally longitudinal axis which is angled with respect to the axis of the hub.

18. **(Original)** The impeller of Claim 1, wherein the groove is generally semi-circular.

19. **(Original)** The impeller of Claim 1 in combination with a jet propulsion device of a watercraft, the jet propulsion device including a housing surrounding the impeller, an intake duct communicating with the housing, and an impeller shaft driving the impeller.

20. **(Original)** The watercraft as in Claim 19, wherein the watercraft includes a hull, and at least a part of the intake duct is defined by a portion of the hull.

21. **(Currently amended)** An impeller for a watercraft comprising:

a boss portion being rotatable about a generally central axis of the impeller;

at least one blade coupled to the boss portion and extending generally outwardly therefrom, the blade comprising an upstream side and a downstream side; and

a through hole on the blade between the upstream side and the downstream side, the through hole having a generally longitudinal axis which is substantially parallel to the central axis of the impeller.

22. **(Original)** The impeller of Claim 21, wherein the hole is sized and arranged to permit high pressure water from the downstream side to flow through the hole towards low pressure water on the upstream side for sweeping water vapor away from the upstream side.

23. **(Original)** The impeller of Claim 21 in combination with an impeller housing, wherein the impeller is enclosed in the housing, the housing has an inner surface, and the blade has an outer rim, the outer rim being spaced from the inner surface by a gap of distance C.

24. **(Original)** The impeller of Claim 23, wherein the through hole has a generally circular shape of a diameter $d_o$ or width w that is about the same as the distance C.

25. **(Original)** The impeller of Claim 23, wherein the through hole has a generally circular shape of a diameter $d_o$ or width w in the range from about the same as the distance C to about twenty times the distance C.

26. **(Original)** The impeller of Claim 22, wherein the impeller has an outer rim that is spaced from the central axis of the impeller by a distance R and the through hole has a generally circular shape with a diameter $d_o$ or width w in the range from about 0.46% of the distance R to about 10% of the distance R.

27. **(Original)** The impeller of Claim 21, wherein the impeller has an external diameter D and the through hole has a generally circular shape with a diameter $d_o$ or width w in the range from about 0.23% of the diameter D to about 5% of the diameter D.

28. **(Original)** The impeller of Claim 21, wherein the blade has a leading rim and the through hole is located to inhibit erosion on a zone of the upstream side spaced from the leading rim by a distance E', the through hole being spaced from the zone of the upstream side by a distance G which is in the range from about 0% of the distance E' to about 50% of the distance E'.

29. **(Original)** The impeller of Claim 28, wherein the through hole is positioned substantially adjacent to the zone of the upstream side.

30. **(Original)** The impeller of Claim 28, wherein the impeller has a direction of rotation and the through hole is positioned forward of the zone of the upstream side relative to the direction of rotation.

31. **(Original)** The impeller of Claim 21, wherein the blade has a leading rim and the through hole is located to inhibit erosion on a zone of the upstream side that is spaced from the leading rim, and wherein the impeller has a direction of rotation and the through hole is positioned forward of the zone relative to the direction of rotation.

32. **(Canceled)**.

33. **(Currently amended)** The impeller of Claim 21, wherein the impeller comprises another through hole that has a generally longitudinal axis which is angled with respect to the central axis of the impeller.

34. **(Canceled)**.

35. **(Canceled)**.

36. **(Canceled)**.

37. **(Canceled)**.

38. **(Canceled)**.

39. **(Currently amended)** An impeller for a marine propulsion device, comprising:

a generally central hub;

at least one blade extending generally outwards from the hub and comprising a front surface and a back surface; ~~and~~

a fluid channel on the blade to allow back-flow driven by a pressure differential between the front surface and the back surface for preventing cavitation induced erosion; and

an outer rim including a leading edge and the fluid channel being disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim.

40. **(Original)** The impeller of Claim 39, wherein the blade has an outer rim and the fluid channel comprises a groove on the outer rim.

41. **(Original)** The impeller of Claim 39, wherein the fluid channel comprises a through passage between the front surface and the back surface.

42. **(Original)** The impeller of Claim 39 in combination with a jet propulsion unit, wherein the blade has an outer rim and the impeller is enclosed in a housing of the jet propulsion unit, the housing having an inner surface spaced from the outer rim of the blade to form a gap therebetween which spaces the inner surface of the housing and the outer rim of the blade by a distance C.

43. **(Original)** The impeller of Claim 42, wherein the impeller has a rotation axis and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d about the same as the distance C.

44. **(Original)** The impeller of Claim 42, wherein the impeller has a rotation axis and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d in the range from about the same as the distance C to about twenty times the distance C.

45. **(Original)** The impeller of Claim 42, wherein the fluid channel has a diameter $d_o$ or width w about the same as the distance C.

46. **(Original)** The impeller of Claim 42, wherein the fluid channel has a diameter $d_o$ or width w in the range from about the same as the distance C to about twenty times the distance C.

47. **(Original)** The impeller of Claim 39, wherein the impeller has a rotation axis and an external diameter D and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d in the range from about 0.23% of the diameter D to about 5% of the diameter D.

48. **(Original)** The impeller of Claim 39, wherein the impeller has an external diameter D and the fluid channel has a diameter $d_o$ or width w in the range from about 0.23% of the diameter D to about 5% of the diameter D.

49. **(Canceled).**

50. **(Currently amended)** The impeller of Claim 3949, wherein the fluid channel is positioned substantially adjacent to the zone of the leading surface.

51. **(Original)** The impeller of Claim 50, wherein the impeller has a direction of rotation and the fluid channel is positioned forward of the zone of the leading surface relative to the direction of rotation.

52. **(Currently amended)** The impeller of Claim 3949, wherein the impeller has a direction of rotation and the fluid channel is positioned forward of the zone of the leading surface relative to the direction of rotation.

53. **(Currently amended)** The impeller of Claim 3949, wherein the fluid channel is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 50% of the distance E.

54. **(Currently amended)** The impeller of Claim 3949, wherein the fluid channel is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 30% of the distance E.

55. **(Original)** The impeller of Claim 39, wherein the fluid channel has a generally longitudinal axis which is substantially parallel to the axis of the hub.

56. **(Original)** The impeller of Claim 39, wherein the fluid channel has a generally longitudinal axis which is angled with respect to the axis of the hub.

57. **(Original)** The impeller of Claim 39 in combination with a jet propulsion device of a watercraft, the jet propulsion device including a housing surrounding the impeller, an intake duct communicating with the housing, and an impeller shaft driving the impeller.

58. **(Original)** The watercraft as in Claim 57, wherein the watercraft includes a hull, and at least a part of the intake duct is defined by a portion of the hull.

59. **(New)** An impeller for a marine propulsion device, comprising a generally central hub having a generally central axis, the hub being adapted to rotate about the axis, at least one blade connected to the hub and extending generally outwardly therefrom, the blade comprising a leading surface facing generally upstream, a trailing surface facing generally downstream and an outer rim, and a groove formed on the outer rim of the blade, the groove having a generally longitudinal axis which is substantially parallel to the axis of the hub.

60. **(New)** The impeller of Claim 59, wherein the groove is formed at a predetermined location at the outer rim of the blade so as to allow fluid to back-flow from downstream to upstream to inhibit cavitation induced bubbles from imploding on the leading surface of the blade.

61. **(New)** The impeller of Claim 59 in combination with a jet propulsion unit, wherein the impeller is enclosed in a housing of the jet propulsion unit, the housing has an inner

surface, and a gap is defined between the outer rim of the blade and the inner surface of the housing, the gap being equal to a distance C.

62. **(New)** The jet propulsion unit of Claim 61, wherein the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d about equal to the distance C.

63. **(New)** The jet propulsion unit of Claim 61, wherein the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d in the range from about the same as the distance C to about twenty times the distance C.

64. **(New)** The jet propulsion unit of Claim 61, wherein the groove has a width w about the same as the distance C.

65. **(New)** The jet propulsion unit of Claim 61, wherein the groove has a width w in the range from equal to about the distance C to about twenty times the distance C.

66. **(New)** The impeller of Claim 59, wherein the outer rim of the blade is spaced from the axis of the hub by a distance R and the projection of the groove on a plane substantially perpendicular to the axis of the hub has a depth d in the range from about 0.46% of the distance R to about 10% of the distance R.

67. **(New)** The impeller of Claim 59, wherein the outer rim of the blade is spaced from the axis of the hub by a distance R and the groove has a width w in the range from about 0.46% of the distance R to about 10% of the distance R.

68. **(New)** The impeller of Claim 59, wherein the outer rim has a leading edge and the groove is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim, and wherein the groove is positioned substantially adjacent to the zone of the leading surface.

69. **(New)** The impeller of Claim 68, wherein the impeller has a direction of rotation and the groove is positioned forward of the zone of the leading surface relative to the direction of rotation.

70. **(New)** The impeller of Claim 59, wherein the outer rim has a leading edge and the groove is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer

rim, and wherein the impeller has a direction of rotation and the groove is positioned forward of the zone of the leading surface relative to the direction of rotation.

71. **(New)** The impeller of Claim 70, wherein the groove is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 50% of the distance E.

72. **(New)** The impeller of Claim 70, wherein the groove is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 30% of the distance E.

73. **(New)** The impeller of Claim 59, wherein the impeller comprises another groove that has a generally longitudinal axis which is angled with respect to the axis of the hub.

74. **(New)** The impeller of Claim 59, wherein the groove is generally semi-circular.

75. **(New)** The impeller of Claim 59 in combination with a jet propulsion device of a watercraft, the jet propulsion device including a housing surrounding the impeller, an intake duct communicating with the housing, and an impeller shaft driving the impeller.

76. **(New)** The watercraft as in Claim 75, wherein the watercraft includes a hull, and at least a part of the intake duct is defined by a portion of the hull.

77. **(New)** An impeller for a marine propulsion device, comprising:

a generally central hub;

at least one blade extending generally outwards from the hub and comprising a front surface and a back surface; and

a fluid channel on the blade to allow back-flow driven by a pressure differential between the front surface and the back surface for preventing cavitation induced erosion, the fluid channel having a generally longitudinal axis which is substantially parallel to the axis of the hub.

78. **(New)** The impeller of Claim 77, wherein the blade has an outer rim and the fluid channel comprises a groove on the outer rim.

79. **(New)** The impeller of Claim 77, wherein the fluid channel comprises a through passage between the front surface and the back surface.

80. **(New)** The impeller of Claim 77 in combination with a jet propulsion unit, wherein the blade has an outer rim and the impeller is enclosed in a housing of the jet propulsion unit, the housing having an inner surface spaced from the outer rim of the blade to form a gap

therebetween which spaces the inner surface of the housing and the outer rim of the blade by a distance C.

81. **(New)** The impeller of Claim 80, wherein the impeller has a rotation axis and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d about the same as the distance C.

82. **(New)** The impeller of Claim 80, wherein the impeller has a rotation axis and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d in the range from about the same as the distance C to about twenty times the distance C.

83. **(New)** The impeller of Claim 80, wherein the fluid channel has a diameter $d_0$ or width w about the same as the distance C.

84. **(New)** The impeller of Claim 80, wherein the fluid channel has a diameter $d_0$ or width w in the range from about the same as the distance C to about twenty times the distance C.

85. **(New)** The impeller of Claim 77, wherein the impeller has a rotation axis and an external diameter D and the projection of the fluid channel on a plane substantially perpendicular to the rotation axis has a depth d in the range from about 0.23% of the diameter D to about 5% of the diameter D.

86. **(New)** The impeller of Claim 77, wherein the impeller has an external diameter D and the fluid channel has a diameter $d_0$ or width w in the range from about 0.23% of the diameter D to about 5% of the diameter D.

87. **(New)** The impeller of Claim 77, wherein the impeller has an outer rim including a leading edge and the fluid channel is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim, and wherein the fluid channel is positioned substantially adjacent to the zone of the leading surface.

88. **(New)** The impeller of Claim 87, wherein the impeller has a direction of rotation and the fluid channel is positioned forward of the zone of the leading surface relative to the direction of rotation.

89. **(New)** The impeller of Claim 77, wherein the impeller has an outer rim including a leading edge and the fluid channel is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim, and wherein the impeller has a direction of rotation and the fluid

channel is positioned forward of the zone of the leading surface relative to the direction of rotation.

90. **(New)** The impeller of Claim 77, wherein the impeller has an outer rim including a leading edge and the fluid channel is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim, and wherein the fluid channel is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 50% of the distance E.

91. **(New)** The impeller of Claim 77, wherein the impeller has an outer rim including a leading edge and the fluid channel is disposed on the blade to inhibit erosion on a zone of the leading surface adjacent the outer rim and spaced from the leading edge of the outer rim by a distance E along the outer rim, and wherein the fluid channel is spaced from the zone of the leading surface by a distance G along the outer rim which is in the range from about 0% of the distance E to about 30% of the distance E.

92. **(New)** The impeller of Claim 77, wherein the impeller comprises another fluid channel that has a generally longitudinal axis which is angled with respect to the axis of the hub.

93. **(New)** The impeller of Claim 77 in combination with a jet propulsion device of a watercraft, the jet propulsion device including a housing surrounding the impeller, an intake duct communicating with the housing, and an impeller shaft driving the impeller.

94. **(New)** The watercraft as in Claim 93, wherein the watercraft includes a hull, and at least a part of the intake duct is defined by a portion of the hull.